

REMARKS

Amendments

In Claim 1, the phrase “comprising 5-80% by weight of a re-dispersible particulate” has been replaced with “consisting essentially of a binder and 5-80% by weight of a re-dispersible particulate”. In Claims 49 and 50, the phrase “comprising 10-60% by weight of a re-dispersible particulate” has been replaced with “consisting essentially of a binder and 10-60% by weight of a re-dispersible particulate”. These amendments are supported throughout the application, especially by the examples in which the strippable material had two essential components, i.e., a binder and a re-dispersible particulate.

Claims 58-68 have been cancelled.

The other amendments in the claims are made for clarity and proper antecedent basis and to eliminate redundancy. No new matter is introduced.

Provisional Double Patenting Rejections

Claims 1-4, 6-11, 14, 18, 33-35, 42-44, 46-48, 50, and 51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over Claims 1-4, 6-11, 14, 18, 32, 34, 35, 50-56, 58, and 60 of co-pending Application No. 10/666,912.

Applicants wish to postpone the response to this provisional rejection until the claims are otherwise allowable.

Claims 58, 60, and 63 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over Claims 44 and 46 of co-pending Application No. 10/422,557.

Claims 58, 60, and 63 are canceled.

35 U.S.C. 102(b) Rejections

(1) Claims 1-4, 6, 7, 9-11, 14, 18, 33 and 40 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Aufderheide (US Patent No. 4,714,631).

Aufderheide discloses an undercoating composition which has three essential components (a) a water-soluble film forming polymer, (b) a solubility accelerator, and (c) solid particulates that are insoluble in the film-former. The solubility accelerator is a water

soluble compound that acts to speed up the rate of dissolution of a coating made with the polymer. The solubility accelerator dissolves in water much more rapidly than the polymer and in general has a Water Solubility Rate of 30 minutes or less (Column 6, lines 45-53).

Claim 1 of the present invention is directed to a process for forming a patterned thin film structure on a substrate. The process comprises several steps, namely, (a) printing a pattern on a substrate using a strippable material and the printed strippable material defines a “negative image” of a decorative design to be formed on the substrate, (b) depositing a thin film material on the patterned substrate and (c) stripping the strippable material from the substrate which causes the strippable material and any thin film material formed thereon to be removed leaving behind the thin film structure formed on the substrate in the shape of the desired decorative design.

The strippable material used in the process consists essentially of a binder and 5-80% by weight of a re-dispersible particulate. The term “re-dispersible particulate” is defined as “a particulate that is dispersible in the stripping solution used to remove the masking coating/ink” (see Paragraph [0018]). The presence of the re-dispersible particulate has the advantage that the strippable material of the present invention can achieve excellent stripping results as shown in the examples, without a solubility accelerator (which is an essential component in Aufderheide).

By reciting “consisting essentially of,” the scope of the strippable material of Claim 1 is limited to include a binder, a re-dispersible, and those that do not materially affect the basic and novel characteristics of the claimed invention. The addition of a solubility accelerator in the strippable material would make the film viscous because the solubility accelerator absorbs moisture easily, thus it would materially affect the pattern forming process. Accordingly, Claim 1 excludes a solubility accelerator taught in Aufderheide.

Therefore, Aufderheide does not anticipate the amended Claim 1 and its dependent Claims 2-4, 6, 7, 9-11, 14, 18, 33 and 40.

(2) Claims 58, 60, and 63 are rejected under 102(b) as allegedly being anticipated by Hinsley (GB 2,207,289)

Claims 58, 60, and 63 are canceled.

35 U.S.C. 103(a) Rejections

A. Claims Dependent from Claim 1

(1) Claim 8 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over

Aufderheide (US Patent No. 4,714,631) as applied to Claim 1 and further in view of Voss et al (US Patent No. 6,426,143).

Claim 8 is directed to the process of the amended Claim 1, wherein the re-dispersible particulate is a polymeric particle or a polymeric composite particle. Aufderheide, as stated above, does not disclose or suggest the use of the claimed strippable materials.

Voss et al discloses a moulded part and flexible film with a protected printed conductor. Such an article is prepared by applying a primer to a plastic film and forming a structured primer layer, drying the structured primer layer, metalizing the structured primer layer to build up an electrically conducting layer wherein the plastic film, the primer layer and the electrically conducting layer form a composite and finally connecting the composite to a plastic outer film by welding or adhesive bonding. The process of Voss et al bears no resemblance to the process of the amended Claim 1; especially it does not have any stripping steps. Therefore, Voss et al do not cure the deficiency of Aufderheide. Accordingly, Claim 8 is not obvious over Aufderheide in view of Voss et al.

(2) Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as alleged being unpatentable over Aufderheide (US Patent No. 4,714,631) as applied to Claim 33 and further in view of Todd et al (US Patent No. 5,368,902).

Claim 34 is directed to the process of the amended Claim 1 in which the substrate comprises a portion of a roll of plastic substrate. Claim 35 is directed to the process of the amended Claim 1 carried out in a roll-to-roll fashion. Both Claims 34 and 35 are dependent from the amended Claim 1.

Todd et al disclose a method for making patterned thin films. In the reference method, a release coat (16) is first applied to a substrate (11), followed by depositing a thin film coating over the release coat. In a subsequent stripping step, the release coating along with the thin film coated deposited on the release coating may be removed. Todd et al, however, only suggest that the release coating material be a water soluble polyvinylpyrrolidone, wax, acrylic polyamide, polyamide, urethane or epoxy. The reference does not suggest addition of a particulate material, let alone of a re-dispersible particulate. Todd et al do not teach or suggest the strippable materials of Claim 1. Accordingly Todd et al do not cure the deficiency of Aufderheide.

Therefore, Claims 34 and 35 are not obvious over Aufderheide in view of Todd et al.

(3) Claim 36 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Aufderheide (US Patent No. 4,714,631) as applied to Claim 1 and further in view of Nakagiri et al (US Patent No. 4,078,935).

Claim 36 is directed to the process of the amended Claim 1 wherein the substrate comprises a PET film. Claim 36 is dependent from the amended Claim 1.

Nakagiri et al disclose a support for a photographic member. The support member comprises a polymer material and an electrically conductive metal oxide semi-conductor layer coated thereon by vapor deposition. Nakagiri et al disclose a subject matter which involves an entirely different concept from the process of the amended Claim 1 and only mention PET as one of the suitable materials for the polymer support. Nakagiri et al do not teach or suggest the strippable materials of Claim 1. Accordingly, Nakagiri et al do not cure the deficiency of Aufderheide.

Therefore, Claim 36 is not obvious over Aufderheide in view of Nakagiri et al.

(4) Claims 37-39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aufderheide (US Patent No. 4,714,631) in view of Nakagiri et al (US Patent No. 4,078,935) as applied to Claim 36 and further in view of Nakamura et al (US Patent No. 5,795,527).

Claim 37 is directed to the process of the amended Claim 1, wherein the substrate is a PET film which is first treated or coated with a release agent or coating and further coated with a durable layer to provide oil and scratch resistance. Claim 38 is directed to the process of the amended Claim 1 wherein a PET substrate is printed with a second decorative design. Claim 39 is directed to the process of the amended Claim 1 wherein the IMD decorated film is further coated with an adhesive layer to form an in-mold transfer film. Claim 41 is directed to the process of the amended Claim 1 wherein the substrate is a PC substrate and the IMD decorated film is further coated with a thin protective layer. All of these claims are directly or indirectly dependent from the amended Claim 1.

Nakamura et al disclose a method of manufacturing decorated articles using a transfer material. In the reference method, a decorative transfer material which includes a base film, a decorative metal vapor deposition layer, a metallic reinforcing layer, a retainer layer, and an adhesive layer is first set in a die for injection molding. During the molding process, the synthetic resin injected into the die is bonded with the metallic reinforcing layer of the decorative transfer material by the adhesive layer. After the resin-based article is formed and

removed from the die, the decorative design on the transfer material has been transferred to the molded article.

Nakamura et al do not teach or suggest the strippable materials of Claim 1.

Accordingly, Nakamura et al do not cure the deficiency of Aufderheide and Nakagiri.

Therefore, Claims 37-39 and 41 are not obvious over Aufderheide in view of Nakagiri et al and Nakamura et al.

B. Independent Claim 42 and Claims Dependent Therefrom

(1) Claims 42-44 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Aufderheide (US Patent No. 4,714,631) in view of MacDiarmid et al (US 2002/0083858).

Claim 42 claims a process for forming a patterned thin film structure on a substrate which comprises several steps. In the first step, the substrate is printed with first material a pattern that defines a positive image of a decorative design to be formed on the substrate. The substrate coated with the first material is then further overcoated with a second material. In a subsequent step, the first material and any of the second material formed on the first material are stripped off, without stripping away the second material formed directly on the substrate. As a result, the second material remains coated on the substrate where the first material was not present, thereby defining a negative image of the decorative design. A thin film material is then deposited on the patterned substrate, followed by stripping off the second material and thin film material deposited on top of the second material to form the thin film structure in the shape of the decorative design. In summary, the process of Claim 42 involves the formation of a positive image using a first material and the formation of a negative image using a second material, before deposition of a thin film material.

Aufderheide discloses a process involving only forming a negative image before depositing a material such as a conductive material.

MacDiarmid et al disclose a process which involves multiple steps. In the reference process, a first material is first applied to a substrate, followed by applying a second material to the substrate and the first material. The reference does not teach or suggest any stripping steps. Instead, the reference discloses that the first material, the second material and the substrate interact to spontaneously form a second pattern of the second material on the substrate (see [0144]). Therefore, the process of MacDiarmid et al is fundamentally different from the process of Claim 42.

Accordingly, Claim 42 and its dependent Claims 43-44 are not obvious over Aufderheide in view of MacDiarmid et al.

(2) Claims 46-48 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Aufderheide (US Patent No. 4,714,631) in view of MacDiarmid et al (US 2002/0083858) as applied to Claim 42 and further in view of Imai et al (US Patent No. 6,140,025).

Claims 46-48 are directed to the process of Claim 42 in which certain specific first and solvents are used.

Imai et al disclose a negative type photosensitive resin composition and method for forming a resist pattern. The method of Imai et al is described in Column 12, lines 25-42. Briefly, the method involves applying the negative type photosensitive resin composition to a substrate, exposing the treated substrate to a laser beam directly or a light through a negative photomask to cure the photosensitive film, and finally developing the uncured portion of the photosensitive film to form a resist pattern on the substrate. The method is a conventional process involving a negative photoresist and it bear no resemblance to the process of Claim 42. Accordingly, Imai et al do not cure the deficiency of Aufderheide and MacDiarmid et al.

Therefore, Claims 46-48 are not obvious over Aufderheide in view of MacDiarmid et al and Imai et al.

C. Independent Claim 50 and Claims Dependent Therefrom

(1) Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Aufderheide (US Patent No. 4,714,631) in view of Brummett et al (US Patent No. 4,368,281).

Claim 50 is directed to a process for forming two patterned thin film structures on a substrate. The first pattern thin film structure is formed by printing a first pattern on a first surface of the substrate using a strippable material consisting essentially of a binder and 10-60% by weight of a re-dispersible particulate, depositing a thin film material on the patterned first surface on the substrate, stripping the first pattern of the strippable material from the substrate whereby the first pattern of the strippable material and any thin film material formed on the first pattern of the strippable material are removed leaving behind the first thin film structure on the first surface of the substrate. A second thin film structure is similarly formed.

As discussed above, Aufderheide does not teach or suggest the use of a strippable

material consisting essentially of a binder and 10-60% by weight of a re-dispersible particulate.

Brummett et al disclose printed circuits. Figure 2 of Brummett et al summarizes the reference process. First of all, the process of Brummett et al requires coating on a substrate layer with an ink composition which comprises a palladium complex (see, for example, column 3, lines 43-44 and Claim 1). The palladium complex is activated/convertible to a conductive metal matrix (see, for example, Figure 2 and column 6, lines 40-43). Secondly, in order to activate the palladium complex, the ink composition, after drying and baking, must undergo treatment with, for example, hydrazine sulfate and sodium hydroxide solution followed by isopropyl alcohol and KOH solution (see, for example, Figure 2 and column 6, lines 3-39). In addition, the reference process requires immersing the activated ink in an electroless metal plating solution to produce the conductive metal matrix (see, for example, Figure 2 and column 6, lines 40-43). The process of Brummett et al is fundamentally different from the process of Claim 50. Brummett et al does not teach or suggest the use of the claimed stippable material, and therefore the reference does not cure the deficiency of Aufderheide.

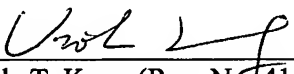
Consequently, the combination of the Aufderheide and Brummett et al does not render the processes of Claims 50 and 51 obvious.

CONCLUSION

Applicants believe that the application is now in good and proper condition for allowance. Early notification of allowance is earnestly solicited.

Respectfully submitted,

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